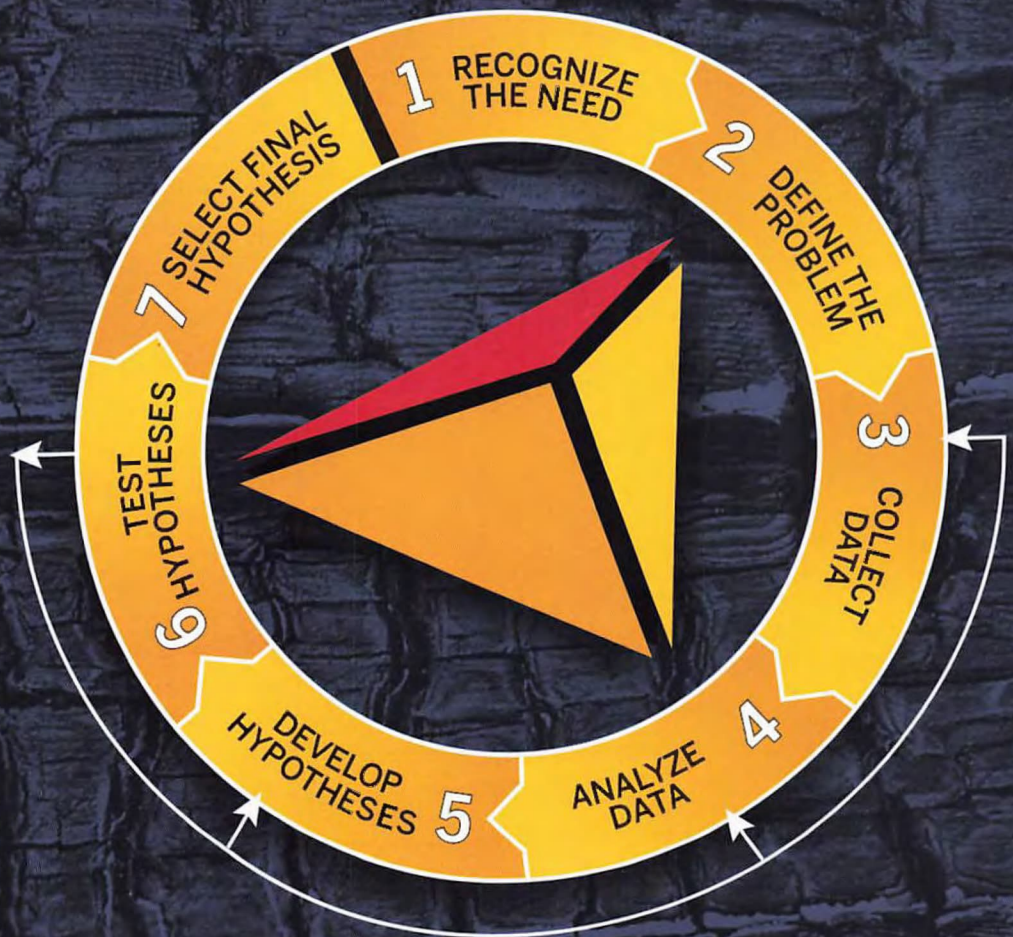
EXHIBIT 5

EXHIBIT 2

NFPA® 921

Guide for Fire and Explosion Investigations

2021



or progression of fire effects. After the data analysis, reasonable hypotheses can be developed.

N 6.1.5 Important data may not be included in the analysis if investigators look only for "patterns" within a fire scene. Investigators are cautioned not to make assumptions about how a pattern was created and then attribute meaning without performing a thorough analysis of all data collected. By noting basic observations, the differences in observations between various fire investigators concerning a basic fact set can be minimized. Following that portion of the investigation, additional data can be collected and further analysis can be conducted. See Figure 6.1.5.

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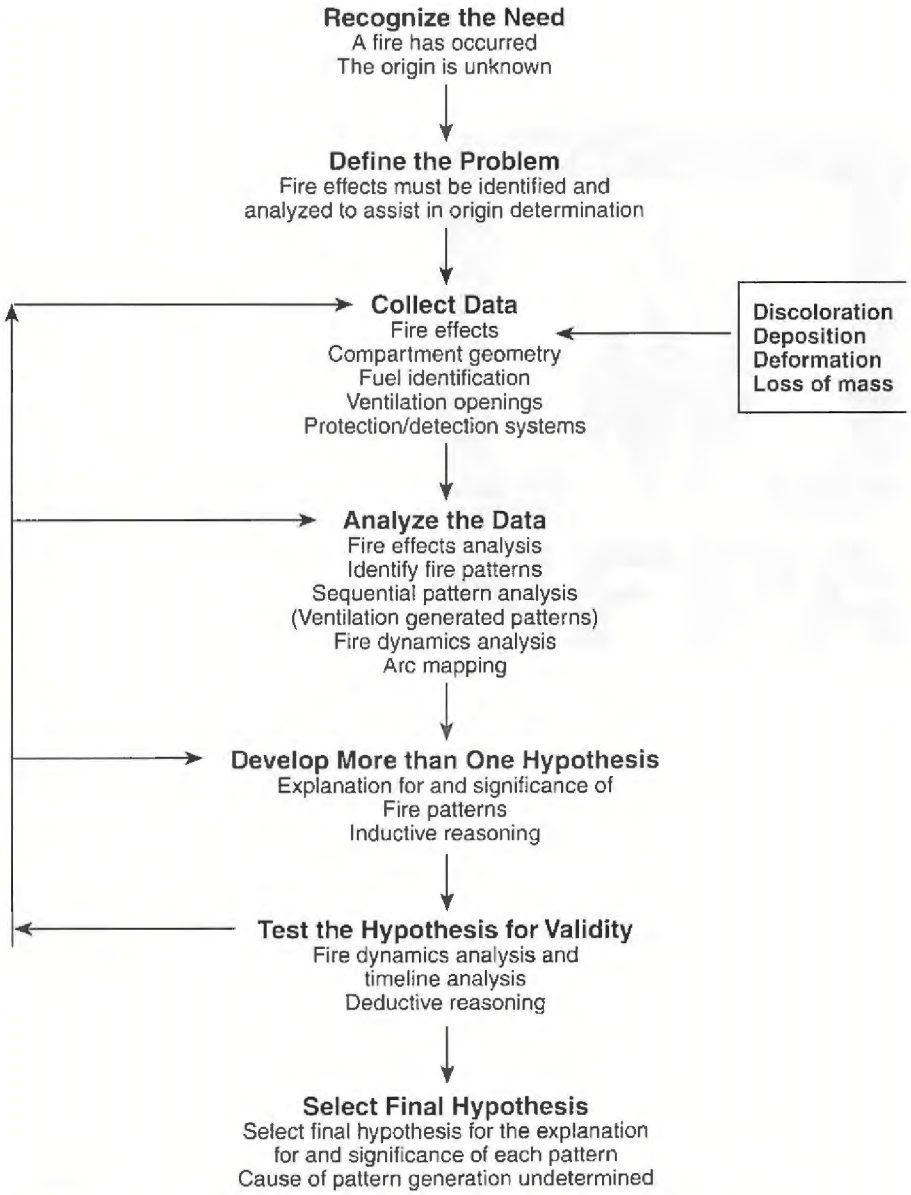
6.2 Observations. Fire investigators make observations of changes that may have resulted from fire conditions. Observations become the factual data set for analysis and interpretation that may lead to opinions about the nature of the fire that caused them. Observations may be qualitative or quantitative.

6.2.1 Fire Effects. As part of data collection, the investigator should be able to recognize the changes that have occurred in materials due to fire. These changes are referred to as fire effects, which are the observable or measurable changes in or on a material as the result of exposure to a fire. Common observations have been organized into four general categories where examples of routinely encountered fire effects have been arranged according to their fundamental observation. Many of the fire effects listed can be included in more than one category, but for simplicity they have been only listed in one category for the Table 6.2.1. Fire effects can be categorized based on the fundamental observation as shown in Table 6.2.1.



N **FIGURE 6.1.5 Example of Applying the Scientific Method to Fire Pattern Interpretation.**

been documented, it is important that the examiner has full and ready access to the entire circumference of the subject.

N **6.3.21.10.3.3** In some cases, affirmative determination whether a particular conductor anomaly is an arc mark cannot be made in the field. In such cases, the mark should be identified, located, and treated as if it were an arc site until a further determination can be made.

N **6.3.21.10.3.4** For conductors in conduit, it is necessary to remove the conductors from the conduit to perform the examination. In this case, the conductor sections should be maintained in the same orientation as the conduit. They may be laid out next to the conduit so that comparisons can be made between any sites of interest and the conduit.

N **(A)** Maintaining the orientation also assists in documenting any findings. Caution is required when removing conductors from conduit because the conductors may be adhered to the conduit either at an arc site or as the result of corrosion. In addition, brittle conductors may break during removal. After removal of conductors from conduit, they should be thoroughly examined as described in 6.3.21.10.3.2.

N **(B)** Retention of the conductors may be accomplished either by using wire ties and securing them to the conduit from which they were removed or, if their ductility permits, rolling them into a coil.

N **6.3.21.10.3.5** Removal of loose insulation and similar material is acceptable to view the conductors. Due to copper's relatively low hardness, extreme care should be taken in using any harder tools, such as steel pliers. Non-damaging tools, such as nylon brushes and bamboo skewers, may be used for removal of this material with relatively little risk of copper damage.

N **6.3.21.10.3.6** A balance may be struck between trying to provide information in the field to the team attempting to discern origin and the necessity to get conductors into the appropriate environment for proper examination. This may necessitate marking so that conductors can be removed and examined later while maintaining appropriate orientation with respect to the scene or the circuit.

N **6.3.21.10.4 Documenting the Damage.**

N **6.3.21.10.4.1** Documenting the arc sites may require different activities depending upon the purpose for which arc mapping occurs. If arc mapping is being done for the purpose of origin determination, then it is likely that the physical location of the arc in the building and its relationship to potential ignition sources and fuels is important and therefore may be noted. In other cases, a more limited purpose for arc mapping relates to determining whether the arc occurred inside or outside a piece of equipment. In both of these cases, some sort of drawing or notation is likely required.

N **6.3.21.10.4.2** In most cases, the best data includes "both sides of the arc site" or the "arc site mate." That means that the ungrounded conductor side and the grounded side or sides are located to demonstrate the complete circuit related to the fault and the remaining site marks. Identifying the two or more marks associated with the fault increases the probability that a true arc mark has been identified. Both "sides" of the arc site should be photographed. As with other documentation, this should include both overview and close-up photos.

N **6.3.21.10.4.3** Although not always possible due to collapse and other damage to circuits, the documentation should also include the circuit identification upon which it was found. This can be facilitated by marking on building drawings or using surveying tools or similar techniques to locate the marks.

N **6.3.21.10.4.4** In the event that a portion of the conductor will be removed and retained, it should be documented in the same way as other evidence. Care should be taken to avoid additional damage to the conductors through proper packaging. Surface cleaning of the removed section should not occur until complete examination by all parties has occurred.

N **6.3.21.10.4.5** Typical surface cleaning may involve the use of mild detergents and ultrasonic cleaners. When this occurs, the arc mark should be documented before and after the cleaning to document the changes.

N **6.3.21.10.4.6** Non-arc marks should also be documented. These may be captured photographically. In some cases it may be helpful to take sample pieces as documentation of the non-arc observations. Melted copper can assist in understanding temperature distributions within the compartment. Documentation of the melted copper locations can be helpful in understanding the fire scenario.

N **6.3.21.10.4.7** Where conductors can be traced back to the panel, the condition of the circuit protection (on, off, tripped) should be documented.

N **6.3.21.10.4.8** The absence of arc melting can be important evidence and should be noted so that it is clear that the particular area was examined, but that no arc sites were found. Progress photos, much like photography during de-layering, can assist in documenting these findings.

6.3.22 Pointer and Arrow Patterns. These fire patterns may be on a series of combustible elements such as wooden wall studs whose surface sheathing has been destroyed by fire. The direction of fire spread along a wall can often be identified and traced back toward its source by an examination of the relative heights and burned-away shapes of the wall studs left standing after a fire. In general, shorter and more severely charred studs will be closer to a source of heat than taller studs. The heights of the remaining studs increase as distance from a source of fire increases. The difference in height and severity of charring may be observed and documented, as shown in Figure 6.3.22.

6.3.22.1 The shape of the studs' cross-section will tend to produce "arrows" pointing back toward the general area of the source of heat. This is caused by the burning off of the sharp angles of the edges of the studs on the sides toward the heat source that produces them, as shown in Figure 6.3.22.1.

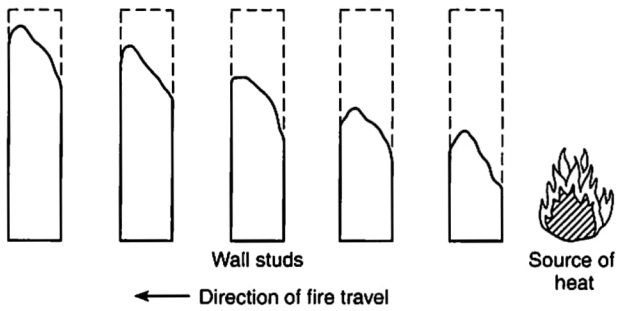


FIGURE 6.3.22 Wood Wall Studs Showing Decreasing Damage as Distance from Fire Increases.